

AMENDMENTS

Amendments to the Specification:

Please amend the specification as follows:

- 5 I. Please amend the title of the invention (line 1, page 1 of the original specification) as follows:

10 ~~PIXEL DIFFERENTIATED CCD ARCHITECTURE METHODS AND~~
~~APPARATUS FOR READING A CCD ARCHITECHTURE IN A SAMPLING~~
~~MODE AND A NON-SAMPLING MODE~~

- II. Please replace Paragraph [0028] in the original specification with the following paragraph rewritten in amendment format:

15 [0028] An imager 200 can be formed entirely of sampling arrays 216 (i.e., without non-sampling arrays 218) or by a combination of sampling arrays 216 and non-sampling arrays 218. Where both are present, any number of ratios of sampling:non-sampling arrays can be used depending upon the circumstances for which the imager [[202]] 200 is contemplated for use. The ratio of sampling:non-sampling arrays can be constant throughout the imager 200, or it can be non-uniform. For example, as depicted in Fig. 5, each of a central portion 502 and a peripheral region 504 of an imager 500 can have constant sampling:non-sampling ratios, with the ratio in the central region 502 being higher (relatively more sampling arrays 216) than in the peripheral region 504. As another alternative, the ratio of sampling:non-sampling arrays can be a gradient that decreases radially (i.e., the density of sampling arrays 216 decreases) from about the center of the imager 500 toward the periphery 506, as indicated by the arrow 508 depicted in phantom lines.

20

25

30

III. Please replace Paragraph [0030] in the original specification with the following paragraph rewritten in amendment format:

[0030] Similarly, for simplicity, Fig. 2 depicts each of the sampling array 216 and the non-sampling array 218 as having a total of 8 pixels. This is a convenient number that permits three banks ~~[[208i]]~~ 206i to be depicted in a drawing, but any number of pixels can be selected for inclusion in an array 216/218. As before, the number of pixels in an array will depend upon the circumstances for which the imager 202 [S/B 200] is contemplated for use. The number of pixels in an array 216/218 is not a limitation upon the invention.

IV. Please replace Paragraph [0031] in the original specification with the following paragraph rewritten in amendment format:

[0031] Lastly, the overall size of the imager 200 has similarly been simplified in Fig. 2. In practice, an imager 200 will have a great many more pixels comprising the first plurality, but that would make for a much more complicated drawing. In other words, the total number of photo-sensing pixels 202/204 in the imager 200 of Fig. 2 will depend upon the circumstances for which the imager ~~[[202]]~~ 200 is contemplated for use.

V. Please replace Paragraph [0033] (as amended on May 18, 2007) with the following paragraph rewritten in amendment format:

[0033] In the sampling mode, the array 300 is controllable so that only the information in the Type II pixel ~~[[202]]~~ 302 is sampled/read. The information in the Type I pixels 304-316 is not read in the sampling mode. Depending upon the value of the sample read from the Type II pixel 302, the array 300 is controllable in a read-mode (more detail to be discussed below in terms of Figs. 4A-4D) so that the information in the Type I pixels 304-316 is read. The term "controllable" is used here to connote that the imager 200, particularly the array 300, is configured with clocking lines and address/control lines so that the clocking circuit

108 and control logic, e.g., in the ASIC 106, respectively, can control the array 300 to behave according to the sampling-mode or the read-mode.

VI. Please replace Paragraph [0037] in the original specification with the following paragraph rewritten in amendment format:

[0037] In Fig. 3C, the sampled information previously in the cell 324 is shown in the cell ~~[[324]]~~ 326, and the null previously in the cell 322 is shown in the cell 324. As the information in the Type I pixels is not being read (shifted downwardly to the cell 322) in the sampling-mode, a null remains indicated for the Type II pixel 302. In Fig. 3D, the sampled information previously in the cell 326 is shown in the cell 328, the null previously in the cell 324 is shown in the cell 326 and a null remains indicated for the Type II pixel 302.

VII. Please replace Paragraph [0039] in the original specification with the following paragraph rewritten in amendment format:

Fig. 4A-4D depict the sampling array 300 and how the array operates in a non-sampling mode, according to an embodiment of the invention. In the non-sampling mode, the information in the Type I pixels 304-316 is read. The decision to enter sampling mode can be based upon an evaluation of the sampled-information obtained from the Type II pixel 302 in the sampling mode. Details of how to determine when to enter the read-mode based upon the results of the sampling-mode can be found in a copending related application by the same inventors (~~Attorney Docket No. 10018579-1 <HDP#6215-000066>~~ U.S. Patent Application Serial No. 10/648445, filed August 27, 2003 (now U.S. Pat. App. Publication No. 2005/0046723, published March 3, 2005), filed the same day as the present application and entitled "Adaptively Reading One Or More But Fewer Than All Pixels Of Image Sensor"), the entirety of which is hereby incorporated by reference.

VIII. Please replace Paragraph [0046] in the original specification with the following paragraph rewritten in amendment format:

[0046] Instead of the combination of the linear sampling arrays 216 and the linear non-sampling arrays 218, the imager 600 is shown as having only the sampling arrays 616 in the banks ~~[[208i]]~~ 206i. Each of the arrays 616 includes Type I pixels 602 and a Type II pixel 604. For ease of recognition, a heavy line has been depicted around the Type I pixels 602 for every other array 616.

(End of Amendments to the Specification.)

(Continued on next page.)